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Technical Summary

Development and Evaluation of a Pedestrian Safety Training Program for Elementary School Bus Riders

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16. Abstract The objective of this study was to develop and evaluate a comprehensive pedestrian safety program for elementary (kindergarten through grade 6) school bus riders. Existing materials, crash data and state laws/regulations on school bus pedestrian safety were reviewed, and a list of 113 behaviors to be included in the program was developed. The major behavioral categories were: getting ready for school, walking to/from the bus stop, waiting at the bus stop, crossing to the bus, boarding the bus, riding the bus, exiting/crossing from the bus and evacuating the bus. The resultant program contains materials for teachers, parents and bus drivers. They include separate <i>Teacher's Guides</i> for each of the seven grade levels. Incorporated in the program for children are two previously produced NHTSA videos: <i>Stop and Look with Willy Whistle</i> and <i>Walking with Your Eyes</i> and one newly developed video titled <i>Willy Whistle Rides the School Bus</i> . A course poster completes the classroom materials. Parent materials include a video titled <i>School Bus Safety Starts at Home</i> and a brochure titled <i>Reminder to Parents...School Bus Safety Starts at Home</i> . Bus driver materials include a video titled <i>When They're Not on the Bus</i> and a brochure titled <i>They're Pedestrians When They're Not on the Bus</i> . Two promotional pieces (a flyer and an 8-page brochure) were prepared to assist NHTSA in marketing the program. All student materials were evaluated in the East Ramapo Central School District, Spring Valley, New York, using a pre-post design with a comparison site. Statistically significant improvements were achieved in critical knowledge and skills as a result of student participation in the program.					
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TECHNICAL SUMMARY

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In 1981, the National Highway Traffic Safety Administration (NHTSA) supported the development of a pilot training program for school bus riders in an attempt to make the pedestrian part of the school bus trip safer. That program provided support for the approach, but the materials themselves were not completed in a form appropriate for national distribution. The objective of the present study, therefore, was to develop and evaluate a comprehensive pedestrian safety program for elementary (K-6) school bus riders which was amenable to nationwide distribution and use. The study consisted of the following major tasks:

- Definition of course content and scope.
- Development of a detailed school bus pedestrian safety curriculum for each grade level, a video for the kindergarten through grade 3 child and a danger zone poster.
- Development of supporting videos and brochures for parents and school bus drivers.
- Selection of a school district to cooperate in assessing the program's effectiveness and implementation and evaluation of the school program in the selected district.
- Development of materials to assist NHTSA in promoting the resultant program.

The study was initiated with identification and review of existing curricula, audiovisual materials, crash data and state laws/regulations on school bus pedestrian safety. As materials were reviewed, a list of school bus pedestrian safety behaviors considered appropriate for inclusion in the curriculum was developed. The final list covered 113 behaviors organized in the following major categories: getting ready for school, walking to/from the bus stop, waiting at the bus stop, crossing to the bus, boarding the bus, riding the bus, exiting/crossing from the bus, and evacuating the bus. Thus it was determined at the outset that the course should cover the entire trip from home to school and back again. Although it was recognized that riding the bus and evacuating the bus were not pedestrian safety behaviors, their inclusion was considered mandatory in order to satisfy the many state laws and administrative rules regarding school bus training.

The course content was organized into the following seven lessons, each of which requires approximately ½ hour for completion:

(Continue on additional pages)

PREPARED FOR THE DEPARTMENT OF TRANSPORTATION, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION,
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- **Lesson 1:** *The Danger Zones*--areas around the school bus where the driver and child can't see each other.
- **Lesson 2:** *Walking Near and Evacuating the Bus*--a bus drill that includes review of the danger zones plus emergency evacuation procedures.
- **Lesson 3:** *Crossing the Street*--for young children, crossing the street midblock with and without parked cars and, for older children, procedures to follow at intersections and procedures to follow in parking lots.
- **Lesson 4:** *Walking to the Bus Stop*--getting ready for school and walking to the bus stop.
- **Lesson 5:** *Arrival of the Bus*--waiting at the bus stop, the meaning of the bus signal lights, and boarding the bus.
- **Lesson 6:** *Riding the Bus*--safe bus riding procedures.
- **Lesson 7:** *Crossing to and from the Bus*--crossing the street to the bus, leaving the bus, and crossing the street from the bus.

A separate *Teacher's Guide* was developed for each of the seven grade levels in the curriculum.

Incorporated in the classroom curriculum are two existing and well-received NHTSA child pedestrian safety videos: *Stop and Look with Willy Whistle* (for children in grades K-3) and *Walking with Your Eyes* (for children in grades 4-6). One additional video titled *Willy Whistle Rides the School Bus* was developed specifically for this program and was designed to coordinate with the lesson plans for the K-3 child. All three videos use a policeman's whistle named *Willy Whistle* as a spokesperson. *Willy Whistle*, NHTSA's symbol of child pedestrian safety, also appears in the course poster to teach children the importance of staying out of the school bus danger zones (those areas around the bus in which the driver and student cannot see each other).

Since it is considered important to elicit the support of both parents and bus drivers in this program, videos and brochures were also developed specifically for these groups. Parent materials include a video titled *School Bus Safety Starts at Home* and a brochure titled *A Reminder to Parents...School Bus Safety Starts at Home*. Bus driver materials include a video titled *When They're Not on the Bus* and a brochure titled *They're Pedestrians When They're Not on the Bus*. These materials describe the program being presented to the children in the classroom and suggest ways in which the group (parents or bus drivers) can help make children safer pedestrians and bus riders.

All classroom materials were evaluated in the East Ramapo Central School District, Spring Valley, New York, using a pre-post design with comparisons. The District encompasses a multicultural community that has urban, suburban and rural areas. Four treatment and two comparison schools participated in the evaluation effort which consisted of four components: a knowledge test administered as a one-on-one interview between a student and a teacher, a staged test of students' skills in exiting the bus and crossing the street, observations of children actually waiting for and boarding the bus during the morning run to school, and discussions with teachers and principals.

The knowledge test was designed to measure the children's understanding of safe procedures for entering the street, walking in the street, waiting at the bus stop, boarding the bus, and exiting the bus and crossing the street. Results of individual test components revealed statistically significant and operationally meaningful improvements in many important safety-related knowledge measures as a result of student participation in the program. Specific increases were noted in knowledge of:

- Stopping at the curb before crossing the street
- Looking left-right-left before crossing the street
- Walking facing traffic when it is necessary to walk in the road
- Standing 3 giant steps from the road (K-3 children) and 6 feet from the road (4-6 children)
- Waiting for those in front to leave the bus first (4-6 children)
- Exiting to the sidewalk away from the bus (K-3 children)
- Moving at least 10 feet forward of the bus (4-6 children)
- Staying out of the danger zones (K-3 children)
- Waiting for the driver's signal before crossing the street from the bus
- Looking left and right while crossing the street (K-3 children).

A composite knowledge score which measured a student's overall grasp of the important safety concepts also improved significantly for the treatment groups as compared to the comparison students who did not receive the program. It is therefore concluded that overall knowledge of school bus pedestrian safety increased as a result of participation in the program.

The first behavioral evaluation measure was a staged evaluation involving exiting the bus and crossing the street. Data from this exercise showed improvements in performance of many of the treatment group skills; however, improvements were also frequently noted for the comparison group. The one skill in which the treatment group (and *not* the comparison group) showed a statistically significant improvement was "look left-right-left for cars," a critical search pattern for pedestrian safety. However, the result was true only for the K-3 child. The K-3 child also achieved a significantly higher composite score for overall safety-related skills evaluated in this exercise. It was noted during the conduct of this exercise that many children did not take the exercise seriously and appeared to consider it to be a game.

The second behavioral evaluation exercise involved observations of children waiting for and boarding the school bus during actual morning runs. This exercise resulted in treatment group improvements in selected skills. Specifically, children in the treatment group increased their waiting distance from the curb (although children in the comparison group did also). In addition, same-side boarders waited until at least the driver opened the door before moving toward the bus and opposite-side boarders increased looking for the driver's signal before moving toward the bus. Opposite-side boarders also increased the distance they walked away from the side of the bus.

The last evaluation effort involved an analysis of evaluation forms on individual lessons completed by the school teachers and of information obtained in meetings with teachers and school principals. Both teachers and principals were, in general, positive about the program and found the materials to be user-friendly and technically good. They made several excellent suggestions for improving individual lessons which were incorporated in the final revision of the curriculum. Both groups revealed a common concern: *children frequently know safety rules but fail to follow them*. Therefore, when the curriculum was revised, activities were added that were designed specifically to make children more aware of the dangers of not following safe school bus pedestrian rules.

Finally, two promotional pieces were prepared to assist NHTSA in marketing the program. One is a flyer that briefly presents the school bus risks, describes the lessons that were designed to counter those risks, and provides an overview of program components. The second is an eight-page brochure that describes the program in more detail.

As work on the final revision was nearing completion, the National Safety Council (NSC) expressed an interest in acquiring and distributing the entire program. NHTSA and NSC agreed on an arrangement to transfer finished materials from the government to NSC where it will be available under the title *Walk-Ride-Walk: Getting to School Safely* which succinctly captures the essence of the behaviors covered by the curriculum.

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